

**ORDER**

U. S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

SO 6820.2B

SOUTHERN REGION

1/26/96

**SUBJ: GUIDELINES FOR TREE GROWTH AND CONSTRUCTION  
ALLOWANCES AT VOR FACILITIES**

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1. **PURPOSE.** The purpose of this order is to provide guidelines to Airway Facilities field offices in achieving and maintaining proper VOR clear zones where tree growth and construction are present.
2. **DISTRIBUTION.** This order is distributed to the Regional Airway Facilities Division, Section level, and to all Airway Facilities field offices.
3. **CANCELLATION.** This order cancels Order SO 6820.2A, Guidelines for Tree Growth Allowances at VOR Facilities dated October 20, 1994.
4. **BACKGROUND.** In the past few years, several VOR facilities have lost approaches, and have been restricted or removed from service by flight inspection due to course roughness. In many instances, construction or excessive tree growth has proven to be the cause of the problem. Removal of trees is an expensive and lengthy task and should be a planned action rather than a reaction. Construction of buildings, power lines, fences, irrigation networks, or any structure with horizontal metallic components must be detected as soon as possible.
5. **ACTION.** The following guidelines are to be followed in achieving and maintaining proper clear zones for conventional VOR facilities, even if they may currently be planned for Doppler conversions:
  - a. An annual site report and obstruction evaluation shall be written for each VOR site. The report shall include, but not be limited to, the possible impact of tree/vegetation growth, new fences or power lines, and new buildings or structures. One copy of the report shall be retained at the sector office/System Management Office (SMO) and one copy forwarded to the Operations Branch, ASO-470. Any of several tools available may be used to help with the obstruction evaluation, such as; panoramic cameras, video cameras, hand levels (clinometers), and transits.
  - b. The Manager for Technical Support (MTS) and the field facility manager (or their designee) shall become knowledgeable of the VOR plot, leases, and lease privileges. A copy of the plot layout, lease, and all lease privileges such as clear

zones, etc., should currently be available at the responsible field office. If not, they may be obtained from the Acquisition and Real Estate Branch, ASO-55.

c. In general, the VOR is to be kept free of groups of trees or vegetation in excess of 4 feet within a 1000-foot radius of the facility. No trees within 1000 feet should be visible from the VOR antenna array at mountain top sites. The clear zone should be cut annually. Yearly cuts prevent the gradual growth of any trees or shrubs which might later be considered valuable. A guideline of two degrees vertical subtended angle shall be used for trees beyond 1000 feet. Exceptions to these guidelines must be considered when removal of trees would unveil a building, power line, or other structure which would be more detrimental than the trees. There should be no structures within 1000 feet of the VOR. Residential type structures beyond 1000 feet should subtend vertical angles of less than 1.2 degrees. Metallic fences radial to the VOR are acceptable within 1000 feet of the facility. No non-radial fences within 500 feet or power lines within 1200 feet of the VOR can be tolerated. Fences or power lines beyond these distances must subtend a vertical angle of less than .5 degree. Large metallic structures must be treated the same as a power line and subtend a vertical angle of less than .5 degree. Order 6820.10, VOR, VOR/DME, and VORTAC Siting Criteria, gives additional information on siting.

d. Sector/SMO personnel shall be alert to any advance indication or information regarding planned construction or heavy equipment activity near a VOR. The sector/SMO shall request the builder/owner to submit a completed FAA Form 7460-1, Notice of Proposed Construction or Alteration.

e. If a lease is inadequate or the amount of land owned is insufficient to accomplish the guidelines in paragraph 5c, above, sector/SMOs shall submit requests through ASO-470 for additional leases/purchases of property.

f. Sector/SMOs shall submit project requests for removal of trees/vegetation to comply with paragraph 5c, above.

6. DETERMINATION. All sites cannot be made into optimum VOR sites without excessive costs. At those facilities where more than routine efforts or resources will be required to meet siting requirements, regional office staff personnel will make the determination on a cost-vs-benefits basis in cooperation with Air Traffic, Flight Standards, and the Airway Facilities Technical Support Staff as to whether the site should be improved, the facility converted to Doppler, or left as is.

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